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Notes on Antillean Pines with Description of a new Species from the Isle of Pines

By W. W. Rowlee

During a trip to southern Florida, Cuba and the Isle of Pines last year, I made a special effort to compare the pines of these three regions, with the result that I am convinced that the pine of southern Florida, *P. heterophylla* of recent authors, is not identical with Grisebach's *P. Cubensis.* The cones of the Florida species are very different from those of the Cuban pine. *Pinus Cubensis* is apparently much closer in affinity to the Loblolly pine (*P. Taeda*) than to *P. heterophylla* and it is possible, though rather improbable, that the Loblolly and the Cuban pine are not specifically distinct.

The pines of the West Indies and the coast region of the southeastern United States grow under conditions of climate and soil very different from the species of the northern and western states. The vegetation associated with them records this, as it is decidedly xerophytic in tendency.

Fortunately the West Indian pines have not been encumbered with the synonymy that attaches to the Mexican species. Indeed it would seem that the recognized botanical species are fewer than the forms that are popularly recognized. We were told on the Isle of Pines that the natives distinguish five kinds of pines when cutting timber. We found sufficient warrant for two, but concluded that the other differences depended upon age and other individual rather than specific traits. One thing was very noticeable, namely, the great uniformity of the pine growths of the whole Antillean region. This was manifest not only among the pines themselves but also in the character of the accompanying plants. The shores washed by the Gulf Stream from its entry into the Caribbean Sea until it passes north of the frost line, whether island or continental, have a strikingly uniform flora. One of the effects apparently upon the pine is to increase the density and relative amount of the summer wood in the annual ring, thereby increasing the weight per cubic foot and also the hardness of the wood, hence the name hard pine. They are the heaviest pine woods known, indeed there are, so far as the writer is aware, no other coniferous woods whose weight equals them. Their wood is as heavy as that of white oak.

The ecological significance of the dense summer wood is, it seems to me, to be found in the necessity of these plants to adapt themselves to a very dry season. By its development the trunk of the tree is encased in dense layers of wood and the escape of water is thereby largely prevented. The dry winds and continuous heat of the region where the hard pines occur suggest that a response on the part of the plant might be expected. No soft pines grow under these conditions and other coniferous woods are scarce while the hard pines often form nearly pure forests.

Another result of my observation was the discovery of an apparently undescribed species on the Isle of Pines and from the position of the scales when the cone opens I propose for it the following name:

Pinus recurvata sp. nov.

Trees of medium to large size with wide-spreading and rounded top; bark of trunk vertically and horizontally fissured but not flaking off; wood very heavy (52 lbs. to cu. ft. when seasoned): branches roughened by scars of bracts and needle-clusters; bracts decurrent on the branch, brown with hyaline margins, recurved, deciduous above the prominent base, after the needles develop: sheath smooth, its scales ciliate on the margins, 0.5 cm. long; needles gray, 3 in a fascicle, 20 cm. long, 2 mm. wide, rounded and 12-striate on the outer, plane with prominent sharply angled midrib on the inner side, 6-striate each side of the midrib, finely and sharply serrate: cone when closed cylindrical, when open ovate, 10 cm. long, 5 cm. thick at the base; scales recurved, remaining compact at the base, 1 cm. wide, dark brown, apophysis inequilateral, slightly rounded and depressed, horizontal carina distinctly evident, umbo diamond-shaped, with a short straight prickle.

In general appearance, and in leaves and vesture of the branches, this species agrees closely with *P. palustris*. The cone is, however, only one half as large, and the depressed umbo and straight prickle are not like that species. Its cone is even more unlike that of *P. heterophylla* and *P. Cubensis*. The Mexican pine, *Pinus Montezumae*, has a cone more like this species than any other I have seen, but this is a five-needled pine. Specimens were collected at Santa Rosalie, Isle of Pines. The tree also occurs commonly over the island.

Of the several kinds of pine distinguished on the island by the natives, the wood of this species is preferred over all others for construction. It has been extensively exported to Cuba, and although the forests are showing considerable ability to regenerate and perpetuate themselves in spite of frequent burning, there is but a remnant left of what must have been originally a magnificent pine forest. The island is certainly well named. Several tracts have been boxed for turpentine but have not been utilized in recent years. It was said that the boxing was mainly done during our Civil War.

It grows commingled with what we considered *Pinus Cubensis* Grisebach, and was confined to the higher parts of the island but did not occur on the mountains.

Pinus Cubensis grows well down toward the shores of the island and in these situations we collected specimens which may be designated:

P. Cubensis anomala var. nov.

Tree 6–9 m. high: needles slender, 3 in a fascicle, bracts 6–8 mm. long, green on the young shoots and resembling the leaves of a spruce, and persistent during the first season.

Dr. Engelmann notes the same tendency in *Pinus serotina* where trees had been felled and new shoots subsequently developed, or posts from freshly cut trees set in the ground. (Trans. Acad. Sci. St. Louis, **4**: 183. 1880.)

The cones and needles of these trees did not present any departure from *P. Cubensis* and we concluded that the smaller size of the trees and the peculiar development of the bracts was due to the proximity of the sea or some other environmental cause. There were several trees near Jucaro Landing on the eastern side of the island. The reversion of the scales to what is generally considered the primitive form of the primary leaf of the pine is an exceedingly interesting phenomenon.

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